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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,167	07/23/2001	Susan Ciaburro	PA-Y1015	3969

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EXAMINER	
LEE, JOHN J	

ART UNIT	PAPER NUMBER
2684	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/912,167	CIABURRO ET AL.	
	Examiner	Art Unit	
	JOHN J LEE	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 30 June 2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments/Amendment

1. Applicant's arguments/amendments received on June 30, 2004 have been carefully considered but they are not persuasive because the teaching of all the cited reference reads on all the rejected claims as set forth in the pervious rejection. Therefore, the finality of this Office Action is deemed proper.

Contrary to the assertions at pages 1 - 12 of the Arguments, claims 1, 2, 5, 7, 9, and 10 are not patentable.

The claim does not require or limit, as during examination the USPTO must give claims their broadest reasonable interpretation.

Applicant should submit an argument under the heading "Remarks" pointing out disagreements with the examiner's contentions. Applicant must also discuss the references applied against the claims, explaining how the claims avoid the references or distinguish from them.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the reference (Norin et al. (US Patent number 6,157,817) teaches in-orbit multiple receive antenna pattern testing

with telemetry circuitry onboard the satellite measures the power level of the uplink signal received and converts it to a corresponding digital value and then the Norin further improve teaching by (US Patent number 6,233,433) that teaches downlink antenna pattern which transmits from the satellite. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Norin (817) as taught by Norin (433), provide the motivation to improve reducing the in-orbit testing time and cost in satellite communication system.

Re claim 1: Applicant argues that the combination of Norin et al. (US Patent number 6,157,817) and Norin et al. (US Patent number 6,233,433) do not teach the claimed invention "slewing the satellite over orientation angles using a slow constant attitude translation". However, The Examiner respectfully disagrees with Applicant's assertion that the Norin (817) and Norin (433) do not teach the claimed invention. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches the satellite position is slewed over angles (orientation angles) which encompass the area of reception of receive antenna and slewing is accomplished by incrementally adjusting (constant attitude translation) the satellite roll and pitch orientation (see Fig. 2 and column 4, lines 65 – column 5, lines 12), regarding the claimed limitation. Also, Applicant argues that the claimed limitation "sensing a power level of the test signal on-board the satellite during slewing" does not teach by Norin. However, The Examiner respectfully disagrees with Applicant's assertion. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches telemetry circuitry converts the sensed uplink signal power levels to digital code for transmission in the telemetry data stream (signal on-board) returned to the ground test station during slewing

(see column 6, lines 17 – 32 and Fig. 1, 7) regarding the claimed limitation. In addition, Applicant argues that the Norin does not teach the claimed limitation "processing the sensed power level and said orientation angles to verify the operation of said receive antenna on the satellite". However, The Examiner respectfully disagrees with Applicant's assertion. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches the satellite antenna configured to perform sensed power levels and orientation angles for testing procedure (see column 4, lines 25 – column 5, lines 12 and Fig. 1, 2), regarding the claimed limitation. Finally, the combination of Norin (817) and Norin (433) do not teach the claimed invention "transmitting downlink telemetry comprising sensed power level and orientation angles of the satellite from the satellite to a telemetry and command earth station that is located at a geographically separate location from the payload test earth station". However, The Examiner respectfully disagrees with Applicant's assertion. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches transmitting downlink telemetry signal by telemetry circuit in the satellite for sensing the power level of received test signal and converts its to a digital code and slewing orientation angle as the satellite is slewed (see column 4, lines 25 – column 5, lines 12 and Fig. 1, 2) and communicating with ground test earth station and also communication with command earth station that is obviously geographically separate location from the ground test earth station (see column 4, lines 25 – column 5, lines 12 and Fig. 1, 2). Also, Norin (433) teaches a ground command earth station and ground test earth station that is separated geographical location from the ground command earth station (see Fig. 1, 4, column 1, lines 44 – 48, and column 5, lines 1 – 10), it would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the Norin (817) system as taught by Norin (433), provide the motivation to improve reducing the in-orbit testing time and cost in satellite communication system, regarding claimed limitation.

Re claim 2: Applicant argues that the combination of Norin (817) and Norin (433) do not teach the claimed invention "processing the noise power level and orientation angles to verify operation of the transmit antenna on the satellite". However, The Examiner respectfully disagrees with Applicant's assertion. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches the satellite antenna configured to perform sensed power levels and orientation angles for the downlink signals to avoid interference. As avoiding interference for downlink signal, the low noise amplifier with filter in the satellite inherently measures and performs to reduce the noise power levels and adjusting orientation angles to operate of the transmit antenna (see column 4, lines 25 – column 5, lines 12, Fig. 1, 2, and column 3, lines 47 – column 4, lines 4). Also, Norin (433) teaches using a switching matrix (processing the noise power for operation of the transmit antenna) is that it reduces the adding unwanted noise to the combined signal and providing a method of testing individual channels (see column 2, lines 64 – column 3, lines 35 and Fig. 2, 3), regarding the claimed limitation. Applicant also argues that the combination of Norin (817) and Norin (433) do not teach the claimed invention "measuring downlink noise in a small bandwidth at the telemetry and command earth station wile the satellite is translated". However, The Examiner respectfully disagrees with Applicant's assertion. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches the satellite configured to perform and measure sensed power levels with interference and orientation

angles for the downlink signals for avoiding interference (see column 4, lines 25 – column 5, lines 12 and Fig. 1, 2), and also Norin (433) teaches the ground station measures the received signal and a test station computer to record data corresponding to the downlink signals including information relating to signal that measuring power levels and interference or noise power levels and bandwidth information within recorded information in each downlink band during satellite is processing (see column 3, lines 10 – 58, Fig. 3, 4, and column 4, lines 14 – 65), provide the motivation to reduce the interference for broadcasting downlink signal in satellite communication system.

Re claims 3 and 4: Applicant argues that the combination of Norin (817) and Norin (433) do not teach the claimed invention "the uplink commands cause a slow constant attitude translation and a discrete steps in attitude translation of the satellite". However, The Examiner respectfully disagrees with Applicant's assertion. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches during the test, the commands are transmitted from the ground test station to the satellite, directing it to adjust its orientation and normal operation, such that constant translation power level (discrete steps) to digital code (see column 4, lines 25 – column 5, lines 50 and Fig. 1, 3), regarding the claim limitation.

Re claim 5: Applicant argues that the combination of Norin (817) and Norin (433) do not teach the claimed invention "uplinking signal at different frequencies of interest from the earth station to the satellite". However, The Examiner respectfully disagrees with Applicant's assertion. Contrary to Applicant's assertion, the Examiner is of the opinion that Norin (817) teaches the ground test station transmits to the satellite multiple

uplink test signals with frequencies corresponding to the receive antennas being tested and each channel responds to uplink signals of different respective frequencies in the satellite (see column 6, lines 5 – 40 and Fig. 5, 6), regarding the claimed invention. Also, Applicant argues that the limitation "generating an input chain frequency response curve for a multibeam satellite communication system" do not teach by Norin. However, the recitation has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Re claims 6 and 8: The Examiner already responded the limitation at the claim 1.

Re claims 7 and 9: The Examiner already responded the limitation at the claims 2 and 5.

Re claim 10: In response to applicant's arguments, the recitation "generating an gain measurement of a transponder of a multibeam satellite communication system" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or

structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Also, Applicant argues that the limitation "processing the recorded noise power measurements to generate a gain measurement of the transponder" However, Norin (817) teaches a computer stores the translated position and signal information that including power level measurement and interference power measurement from the telemetry data stream and then processing and generating gain measurement of the satellite by an amplifier to increase the power of signal for transmission, more specifically, the computer plots the power levels with noise power of received downlink signals as a function of the satellite's position to produce a map (gain measurement) of receive antenna pattern (see column 3, lines 47 – column 4, lines 64 and Fig. 1, 2), regarding the claimed limitation. Moreover, Norin (433) also teaches the ground station measures the received signal and a computer to record data including signal information, such as power level measurement and interference power measurement, corresponding to the downlink signals (see column 4, lines 14 – 65 and Fig. 4, 5).

Re claim 11: The Examiner already responded the limitation at the claim 2.

Applicant's attention is directed to the rejection below for the reasons as to why this limitation is not patentable.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1 – 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Norin et al. (US Patent number 6,157,817) in view of Norin (US Patent number 6,233,433).

Regarding **claim 1**, Norin (817) discloses that a method of testing a satellite (Fig. 1) receive antenna (4 in Fig. 1) of a multibeam satellite system (Fig. 1 and column 3, lines 47 – column 4, lines 24). Norin (817) discloses that uplinking a test signal (3 in Fig. 1) from a payload test earth station (Fig. 1) to the receive antenna (4 in Fig. 1) (Fig. 1 and column 4, lines 5 – 50). Norin (817) discloses that slewing the satellite over orientation angles using a slow constant attitude translation (Fig. 1, 2, abstract, and column 4, lines 5 – 24, where teaches the satellite's position is slewed over angles approximately covering the receive antenna areas of reception). Norin (817) discloses that sensing a power level of the test signal on-board the satellite during slewing (Fig. 1, 2, abstract, and column 4, lines 5 – column 5, lines 13, where teaches telemetry circuitry onboard the satellite senses the power levels of the signals and keeps track if the onboard equipment). Norin (817) discloses that transmitting downlink telemetry comprising sensed power level and orientation angles of the satellite from the satellite to the payload test earth station (Fig. 1, 2 and column 3, lines 47 – column 4, lines 23, where teaches the satellite transmits downlink telemetry, power levels, angles, and other data to transmission back to earth). Norin (817) discloses that processing the sensed power level and said orientation angles to verify the operation of said receive antenna on the satellite (column 4, lines 25 –

column 5, lines 13 and Fig. 1, 2, where teaches the satellite receive antenna configures and processes the slewing angles and sensed power levels).

Norin (817) does not specifically disclose the limitation "transmitting downlink telemetry from the satellite **to a telemetry and command earth station** that is located at a geographically separate location from the payload test earth station". However, Norin (433) discloses the limitation "transmitting downlink telemetry from the satellite **to a telemetry and command earth station** that is located at a geographically separate location from the payload test earth station" (column 1, lines 44 – 48, Fig. 4, 5, and column 4, lines 14 – column 5, lines 17, where teaches prior tests required an uplink signal to be transmitted from multiple uplink sites and downlink signals were received at test stations within each downlink beam). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Norin (817) system as taught by Norin (433), Thus allowing measurements at multiple points in coverage area, as discussed by Norin (433), (column 1, lines 50 – 55).

Regarding **claim 2**, Norin (817) and Norin (433) disclose the all the limitation, as discussed in claim 1. Furthermore, Norin (817) further discloses that processing the noise power level and orientation angles to verify operation of the transmit antenna (24 in Fig. 1) on the satellite (column 4, lines 14 – column 5, lines 17 and Fig. 4, 5). However, Norin (817) does not specifically disclose the limitation "measuring downlink noise in a small bandwidth at the telemetry and command earth station while the satellite is translated". However, Norin (433) discloses the limitation "measuring downlink noise in a small bandwidth at the telemetry and command earth station while the satellite is translated"

(column 4, lines 14 – column 5, lines 23, abstract, and Fig. 4, 5, where teaches received downlink signal is measured and recorded the signal information, power level within each downlink band, for reducing possibility of adding unwanted noise). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Norin (817) system as taught by Norin (433). The motivation do so would be to achieve reducing unwanted noise by performing in-orbit satellite tests in satellite communication system.

Regarding **claim 3**, Norin (817) discloses that the uplinked commands cause a slow constant attitude translation of the satellite (column 4, lines 5 – 24 and Fig. 1).

Regarding **claim 4**, Norin (817) discloses that the uplinked commands cause a discrete steps (power levels) in attitude translation of the satellite (column 4, lines 5 – 39 and Fig. 1).

Regarding **claim 5**, Norin (817) and Norin (433) disclose the all the limitation, as discussed in claims 1 and 2. Furthermore, Norin (817) further discloses that positioning an uplink beam is over an earth station (column 2, lines 36 – column 3, lines 2 and Fig. 1). Norin (817) teaches that uplinking signals at different frequencies of interest from the earth station to the satellite (column 6, lines 4 – 33 and Fig. 5, 6, where teaches received uplink signals of different respective frequencies from ground station). Norin (817) teaches that generating downlink telemetry on-board the satellite that corresponds to the signal strengths of respective signals at the different frequencies (column 4, lines 5 – 64, Fig. 1, 6 and column 6, lines 4 – 33, where teaches computer generate downlink telemetry (power levels) of different respective frequencies). Norin (817) teaches that

recording the signal strength telemetry and uplink frequency at the earth station (column 4, lines 25 – 64 and Fig. 1, where teaches the ground station stores the translated position and signal information from telemetry data stream). Norin (817) teaches that processing the recorded signal strength telemetry and uplink frequency to produce the input power frequency response curve (column 4, lines 25 – 64 and Fig. 1, where teaches the ground station stores the translated position and signal information from telemetry data stream for processing, computer plots the power levels as a function of the satellite's position to produce a map of the receive antenna pattern).

Regarding **claims 6 and 8**, Norin (817) and Norin (433) disclose the all the limitation, as discussed in claims 1 and 2.

Regarding **claim 7**, Norin (817) and Norin (433) disclose the all the limitation, as discussed in claims 1 and 5. Furthermore, Norin (817) further discloses that processing the recorded signal strength telemetry to produce the input chain transfer curve corresponding to input power frequency response (column 4, lines 25 – 64 and Fig. 1, 3f, where teaches the ground station stores the translated position and signal information from telemetry data stream for processing, computer plots the power levels as a function of the satellite's position to produce a map of the receive antenna pattern).

Regarding **claim 9**, Norin (817) and Norin (433) disclose the all the limitation, as discussed in claims 2 and 7. However, Norin (817) does not specifically disclose the limitation "measuring noise power of the downlink beam over a small bandwidth centered around a plurality of selected frequency of interest at the earth station". However, Norin (433) discloses the limitation "measuring noise power of the downlink

beam over a small bandwidth centered around a plurality of selected frequency of interest at the earth station" (column 4, lines 14 – column 5, lines 23, abstract, and Fig. 3, 4, where teaches received downlink signal, that switched for selecting the sampled signals to be combined to produce a single combined signal/beam, is measured and recorded the signal information, power level within each downlink band, for reducing possibility of adding unwanted noise). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Norin (817) system as taught by Norin (433). The motivation do so would be to achieve reducing unwanted noise by performing in-orbit satellite tests in satellite communication system.

Regarding **claim 10**, Norin (817) and Norin (433) disclose the all the limitation, as discussed in claims 2 and 7. Furthermore, Norin (817) further discloses that processing the recorded noise power measurements to generate a gain measurement of the transponder (column 3, lines 31 – column 4, lines 24 and Fig. 1, 2).

Regarding **claim 11**, Norin (817) and Norin (433) disclose the all the limitation, as discussed in claims 2 and 7.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leopold et al. (US Patent number 6,269,242) discloses Dynamic Beam Fill-in System and Method Therefor.

Tong et al. (US Patent number 6,337,658) discloses Transmit Antenna Alignment Peak Search Method and Apparatus.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(703) 306-5936**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay Aung Maung**, can be reached on **(703) 308-7745**. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L
October 26, 2004

John J Lee

NAY MAUNG
SUPERVISORY PATENT EXAMINER